Title: **Fractions and Exponents**

Objective:

To discover some new properties
of exponents and to practice with fractions.

IN:

Assume the area of your desktop is equals 1. Your math book covers $\frac{1}{4}$ of your desktop, your calculator covers $\frac{1}{16}$ of your desktop and your scrap paper covers $\frac{1}{32}$ of your desktop.
What total area is covered by these objects?
Write an addition expression and then give your answer as a single fraction in lowest terms.

Write each multiplication expression in exponent form.

1. 5(5)(5)(5)(5)
2. 15x15x15
3. 2·2·2·2·2·2·2·2·2·2

Rewrite each expression as repeated multiplication.

4. 25^2
5. 3^4
6. 5^5

Write each number as POWER with an exponent not equal to 1!
For example $125 = 5^3$

7. 27 =

8. 32 =

9. 1 =

10. 1/4

Exponents Exploration
Prove your own properties!

Name: _____
Period: _____

Power	Answer	Power	Answer	Power	Answer
1^5		10^5		$\frac{1}{2}^5$	
1^4		10^4		$\frac{1}{2}^4$	
1^3		10^3		$\frac{1}{2}^3$	
1^2		10^2		$\frac{1}{2}^2$	
1^1		10^1		$\frac{1}{2}^1$	

- Write your own "conjecture" about any number n raised to the 1st power. Test your conjecture.

Utilizing the pattern that you found above, continue the tables below:

Power	Answer	Power	Answer	Power	Answer
1^0		10^0		$\frac{1}{2}^0$	

- What conjecture can you make about raising a number to the zero power?
- Describe WHY raising a number to the power of zero = 1.

Properties of exponents: Expand first. Then, re-write as a new power:

1) $3^4 \cdot 3^5$

2) $x^8 \cdot x^5$ Property: $a^m \cdot a^n =$

3) $\frac{3^8}{3^2}$

4) $\frac{x^{12}}{x^7}$ Property: $\frac{a^m}{a^n} =$

5) $(3^2)^4$

6) $(x^4)^6$ Property: $(a^m)^n =$

http://www.youtube.com/watch?v=8htcZca0J1A

Pizzaz worksheet!

Summary:

Exponents get really _____really _____. Any number raised to the first power is _____and any number raised to the zero power is ____.

Out:

Make up a problem that involves fractions and exponents. Solve your own problem.

Attachments

Fantastic_Trip.ppt